In The Claims

Please amend the claims as follows:

1. (ORIGINAL) A heat exchanger for use in temperature control comprising two or more heat transfer elements containing flowing heating or cooling fluid and in contact with a medium whose temperature is to be controlled by the number of heat transfer elements in operation and which can be varied to control the heat transfer capacity of the heat exchanger wherein the number of heat transfer elements in operation is controlled by measurement of the temperature of the medium to be controlled and the actuator for controlling the number of heat transfer elements in operation is contained within the body of the heat exchanger.

2. (ORIGINAL) A heat exchanger according to Claim 1, in which the heat transfer fluid is delivered to each flowing heat transfer element at substantially constant flow and temperature.

3. (PREVIOUSLY PRESENTED) A heat exchanger according to Claim 1, wherein the heat transfer area is the only variable controlled by measurement of the temperature of the medium whose temperature is to be controlled.

4. (PREVIOUSLY PRESENTED) A heat exchanger according to Claim 1, in which the heating or cooling fluid is a non isothermal heating or cooling medium.

5. (PREVIOUSLY PRESENTED) A heat exchanger according to Claim 1, in which the material whose temperature is to be controlled is

contained within a single conduit and the variable area heat transfer surface is achieved by segregating the heat transfer fluid into multiple separate conduits which can be opened or closed in a cascade fashion according to the quantity of heating or cooling required.

6. (PREVIOUSLY PRESENTED) A heat exchanger according to Claim 1, in which the heat transfer fluid is contained within a single conduit and the variable area heat transfer surface is achieved by segregating the material whose temperature is to be controlled into multiple separate conduits which can be opened or closed in a cascade fashion according to the quantity of heat or cooling required.

7. (PREVIOUSLY PRESENTED) A heat exchanger according to Claim 1, which maintains a temperature difference of at least 5°C between the heat transfer fluid and the material whose temperature is to be controlled.

8. (PREVIOUSLY PRESENTED) A heat exchanger according to Claim 1 which maintains a temperature difference of from 5°C to 100°C between the heat transfer fluid and the fluid whose temperature is to be controlled.

9. (PREVIOUSLY PRESENTED) A heat exchanger according to Claim 1, which maintains a substantially constant temperature difference between the heat transfer fluid and the material whose temperature is to be controlled.

10. (PREVIOUSLY PRESENTED) A heat exchanger according to Claim 1 in which the heat transfer surface is segregated into 5 or more separate elements.

11. (PREVIOUSLY PRESENTED) A heat exchanger according to Claim 1, which is a plate heat exchanger.

12. (PREVIOUSLY PRESENTED) A heat exchanger according to Claim 1, which is a solid block heat exchanger formed of a solid drilled block or a sandwich of sections with machined slots.

13. (PREVIOUSLY PRESENTED) A heat exchanger according to Claim 1, in which the actuator for varying the heat transfer area is a piston which can be moved through the plates or heat transfer elements so as to open or close the heat transfer elements to flow.

14. (PREVIOUSLY PRESENTED) A heat exchanger according to Claim 1 in which the actuator is a piston with holes which may be rotated so as to open or close the plates or heat transfer elements to flow.

15. (PREVIOUSLY PRESENTED) A heat exchanger according to Claim 1 in which the actuator used for varying the heat transfer area comprises of a soft inner pipe being compressed against a hard outer pipe so as to open up the heat transfer surface in incremental steps.

16. (PREVIOUSLY PRESENTED) A heat exchanger according to Claim 1 in which the individual conduits are controlled by multiple separate valves.

17. (PREVIOUSLY PRESENTED) A heat exchanger according to Claim 1 in which the valve or valves for variable area control such that the flow through the leading element can be varied for fine control purposes.

18. (PREVIOUSLY PRESENTED) A heat exchanger according to Claim 1 provided with a control system in which the heat transfer area is varied in order to modify or control the temperature of the fluid whose temperature is to be controlled.

19. (PREVIOUSLY PRESENTED) A heat exchanger according to Claim 1, wherein the heat transfer area is controlled by a signal from the material whose temperature is to be controlled.

Claims 20 through 30. (canceled)